Chapter
4
Waste Reduction, Recycling, and Market Development

As our regional population and economy continue to grow and waste generation is on the rise, reduction and recycling continue to be our most important allies for managing solid waste in the future. With this Plan, we build upon policies and programs that began in the late 1980s when King County established waste reduction and recycling as top priorities for managing solid waste. King County's recycling estimates, along with Washington Department of Ecology survey data, show that the amount of waste diverted each year from the Cedar Hills Regional Landfill to the recycle bin has increased by more than 250 percent since 1987. Waste reduction and recycling have proven to be environmentally sound and cost-effective strategies for managing solid waste – strategies that are backed by strong public support. The question for the future becomes – how do we build on this momentum?

This chapter sets out to answer that question. The chapter first presents the County's policies on waste reduction and recycling. The remainder of the chapter helps to set the stage by first reviewing the history and successes that have been achieved since the late 1980s, when the cities and the County launched many of the programs that have helped us reach our goals thus far. Following this review is discussion of the new regional goal for waste reduction and recycling that will carry us through the next 20 years, with quantitative targets for measuring our success in reaching that goal. Next is a summary of the County's methods for assessing the recyclables market in the region – information that is critical in establishing appropriate program levels. And finally, the chapter presents the multi-faceted recommendation for waste reduction and recycling, with all of its associated enhancements to regional programs, services, and facilities.

County Waste Reduction and Recycling Policies

The County policies for waste reduction and recycling are as follows:

WRR-1. The council finds that existing county policies for waste reduction and recycling have been valuable for guiding the efforts of King County, suburban cities and the private sector. These policies recognize that successful waste reduction and recycling efforts depend on changing the behavior of individuals and organizations rather than accommodating existing behavior. Based on these findings, the mission of King County's waste reduction and recycling programs is to divert as much material as possible from disposal in a manner which reduces the overall costs of solid waste management to county residents and businesses, conserves resources, protects the environment and strengthens the county's economy. The county should evaluate its success in achieving this mission through measures that are consistent with:

1. Decreasing the total amount of waste generated and disposed per county resident, acknowledging that business activities, average household size and other external factors affect this amount.

2. Recycling additional materials out of its disposal stream at least as long as such action is likely to create a long-term, net economic benefit compared to the costs of disposal. An analysis of the costs and benefits of recycling should include current and projected values for collection, hauling and processing costs and the return in commodity prices for recycled materials versus the current and projected costs of collection, hauling and disposal of the same materials.

WRR-2. The county should enhance existing waste reduction and recycling programs, add more recycling opportunities at county transfer stations, pursue markets for additional diversion of organic materials, and increase marketing efforts to support and further waste reduction and recycling goals.

WRR-3. The county and cities should manage solid waste generated by their respective agencies in a manner that demonstrates leadership for residents, businesses, and institutions.

WRR-4. The county shall encourage and promote waste reduction and recycling in order to reduce the amount of solid waste disposed in the Cedar Hills Regional Landfill or through waste export.

WRR-5. The county should use the following measurement targets to identify the region's effectiveness in meeting objectives in waste reduction and recycling. These targets should be evaluated at least every three years when data becomes available from the waste monitoring studies.

1. Disposal rates per residential customer should be held constant throughout the planning period. The residential target is 18.5 pounds of solid waste per person per week calculated by dividing the estimated amount of waste disposed by households by the estimated number of residents in the county's solid waste system.

2. Disposal rates for per employee should be held constant throughout the planning period. The employee target is 23.5 pounds of solid waste per employee per week calculated by dividing the estimated amount of waste disposed by businesses in the county by the estimated number of employees.

3. The curbside and on-location recycling rates for single family, multi-family and non residential entities should be increased over the planning period as follows:

Year	Single Family (1 to 4 Dwelling Units)		Multi-Family (5 or more Dwelling Units)		Non-Residential
	Curbside Recycling Rate (percent)	Curbside Disposal Rate (lbs/household/week)	Recycling Rate (percent)	Disposal Rate (lbs/household/week)	Recycling Rate (percent)
2006	50%	31.4 lbs.	35%	20.8 lbs.	43%
2012	52%	30.7 lbs.	40%	20.3 lbs.	46%
2018	53%	30.5 lbs.	40%	20.1 lbs.	48%

WRR-6. The county should provide grant funding to cities to support their waste reduction and recycling programs for which all cities will be eligible. Grant funds are intended to implement recommendations in this plan, based on the communities' prioritized needs.

WRR-7. The county shall coordinate with cities in planning and implementing waste reduction and recycling programs, and in designing and conducting future studies and market assessments for the region.

WRR-8. The county and cities should hold annual meetings to coordinate work plans and ensure that grant-funded and county programs are coordinated and complementary.

WRR-9. The county should provide drop box collection sites for primary recyclables to serve areas where household collection is not provided.

WRR-10. The county should, where feasible, provide areas for expanded collection of secondary recyclable and reusable materials at new and upgraded transfer stations.

WRR-11. The county and the rural cities should periodically assess the feasibility of expanding curbside collection of recyclables in rural areas not currently receiving this service.

WRR-12. The county and cities should add secondary recyclables to collection programs when feasible and supported by the community.

WRR-13. Cities should consider providing scheduled events to collect secondary recyclables at selected sites.

WRR-14. Those cities exercising contracting authority for solid waste collection should consider including collection of recyclables in the waste collection service offered to both residents and businesses.

WRR-15. The cities and county should provide coordinated education, promotion, incentive, and technical assistance programs to businesses, residents and schools for waste reduction, source reduction, resource conservation and recycling.

WRR-16. The county should provide technical assistance to manufacturers in the use of recycled materials and the application of product stewardship principles.

WRR-17. The county should encourage the cities to establish rate-based incentives for solid waste collection services that encourage participation in recycling programs and reduced generation of garbage.

WRR-18. The county should promote environmentally sound management of all organic materials in the mixed municipal solid waste stream.

WRR-19. The county should implement programs that are designed to increase the demand for recycled and reused products, create and sustain markets for recycled materials, and integrate waste reduction and recycling programs with other resource conservation activities.

WRR-20. Using waste characterization studies and market assessments, the county should regularly evaluate regional recycling markets and technologies to ensure that programs and services support the region's recycling and waste reduction goals.

WRR-21. The county should work with cities and private collection companies to develop programs to improve the recycling rate in the small business community.

WRR-22. The cities and the county should address the needs of small businesses by providing technical assistance and programs that target recycling and waste reduction in the workplace.

WRR-23. The county should promote material exchanges and reuse centers and evaluate other venues for reuse.

WRR-24. The cities and county should provide for collection of primary recyclables including glass, tin and aluminum cans, mixed waste paper, newspaper, #1 and #2 plastic bottles, and yard waste and evaluate adding other materials as either primary or secondary recyclables by targeting specific commodities.

WRR-25. The county should target primary residential recyclables, yard debris, food waste and compostable paper, non-residential paper and cardboard, and green and urban wood for future diversion from the waste stream through recycling or waste reduction.

WRR-26. The county shall update the list of secondary recyclables yearly in its annual report based on state recycling survey data and information from city and county programs.

WRR-27. The county should work with the cities, commercial haulers and the public to identify new materials to be designated as primary recyclables.

WRR-28. The county should develop and implement a regional product stewardship strategy, provide technical assistance to manufacturers in the use of recycled materials and the application of product stewardship principles.

WRR-29. The county should pursue product stewardship strategies to reduce costs of waste disposal, to place more responsibility on manufacturers to reduce toxicity of their products, to conserve energy, and to plan for product reuse and recycling in product development.

WRR-30. The county shall maintain government procurement policies that favor the use of recycled and environmentally preferable products.

WRR-31. The county should implement and promote the green building principles in all county-funded capital projects.

WRR-32. The county should foster sustainable development through promotion of sustainable building principles in construction projects throughout the county.

WRR-33. The county should promote reuse and recycling of source separated construction, demolition and land clearing materials through participation in organizations like the Reusable Building Materials Exchange.

WRR-34. The county should foster sustainable building principles through public education and partnerships with organizations such as the U.S. Green Building Council.

WRR-35. The department of natural resources and parks should develop and promote landscape best management practices, including water conservation, reduced use of pesticides, and grasscycling.
WRR-36. The county shall make recycling a priority at new and renovated transfer stations by maximizing recycling opportunities while taking into consideration user needs, site constraints, costs and benefits, and market availability. The county should evaluate the potential for accepting new recyclable materials at county facilities. Potential new recyclable materials include, but are not limited to: scrap and processed metal, used oil and antifreeze, computers, recyclable construction and demolition debris, household hazardous waste, and reusable household items.
WRR-37. Where feasible, the county should provide areas for source-separated yard waste collection at all existing, new or upgraded transfer stations and drop boxes.
WRR-38. The county shall implement programs to provide for affordable collection and recycling of woody debris generated by major storm events or for residents in areas affected by the Puget Sound Clear Air Agency's burn ban.
WRR-39. The county should work to convert landfill gas, a valuable green resource, into a marketable energy product as soon as possible.

What Have We Gained through Our Regional Efforts?

In the late 1980s, waste reduction and recycling became the primary methods of managing solid waste in the King County regional system (RCW 70.95 and KCC 10.22). The County worked with the private hauling companies and cities to establish curbside recycling throughout the region. To support the shift in strategy from waste disposal to reduction and recycling, the cities and the County also established numerous programs for education and technical assistance and conducted extensive research to find new ways to recycle and reuse material that would otherwise be thrown away. Programs have been developed to address the needs of our diverse customers, from households and businesses to schoolchildren. The *Master Recycler Composter Program*, the *Green Works Business Recycling Program*, and *Hazards on the Homefront* are just a few of the popular programs offered in King County. Many of the city and County programs have received recognition and awards for their successes at the national, state, and local levels.

More and more businesses in King County are recycling plastic films such as shrink wrap and pallet wrap

The cities and the County have become leaders in the promotion of waste reduction and recycling by working cooperatively on a number of region-wide programs. The

cities provide programs and services for their residents and businesses, while the County's Waste Reduction & Recycling Section supports programs regionally and in unincorporated areas. In addition, the Solid Waste Division of the King County Department of Natural Resources and Parks researches and supports vital markets for recyclable materials. A comprehensive list of programs and activities, and associated responsibility for carrying them out, is presented in Table 4-3 at the end of this chapter.

Provided below is a brief snapshot of the history of waste reduction and recycling in the region, followed by a look at current public opinions.

The History

In 1987, about 800,000 tons of mixed municipal solid waste (MMSW) was disposed at King County's landfills, resulting in an overall disposal rate of about 1,800 lbs per person per year (King County disposal records and *Annual Growth Reports*). The trends for waste disposal were rising steeply, up from an annual disposal rate of about 1,120 lbs per person in 1975. Solid Waste Division (Division) forecasts during this period predicted that the Cedar Hills Regional Landfill would be filled to its permitted capacity by 2004. The availability of replacement landfills was uncertain, and County plans to construct incineration plants proved to be infeasible because of public concerns about health and environmental impacts.

In 1989, the state adopted the Waste Not Washington Act to ensure that recycling services were made available to all residents living in urban areas. By 1988, the King County Council had already established a more aggressive goal for waste reduction and recycling – to divert 50 percent of the waste stream from disposal by 1995 and 65 percent by the year 2000. To respond to Council and state legislative directives, numerous waste reduction and recycling programs were set in motion to preserve the life of the landfill and delay the need to construct any new disposal facilities. Educational and technical assistance programs to promote and educate about recycling and reuse were offered to a diverse audience of community residents, businesses, and schools.

Recycle Week programs encourage the public to improve their recycling habits and to practice waste reduction

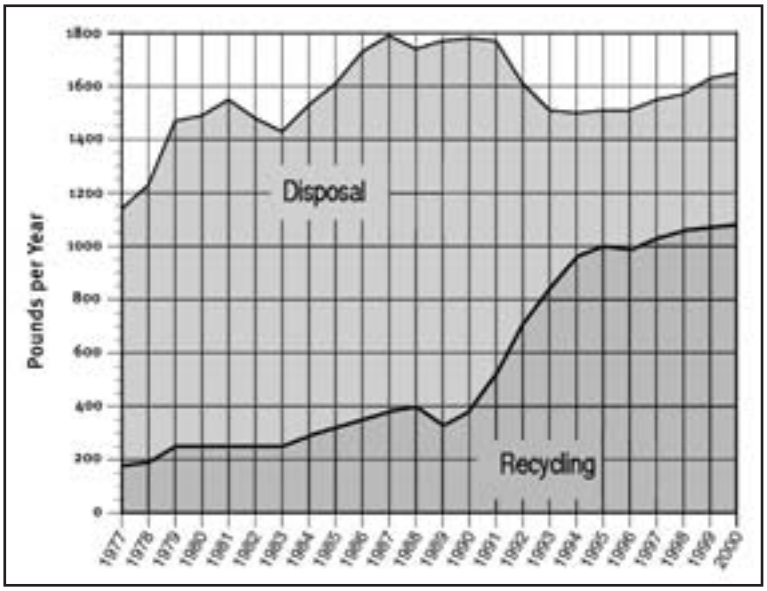
Through the cooperative efforts of the cities, County, residents, businesses, private recycling firms, and solid waste management companies, between 1987 and 1992 the region's waste reduction and recycling rate increased from around 18 to 35 percent. This success was due in large part to the implementation of residential curbside recycling throughout the King County regional system. In 1995, we reached the 50 percent mark, through continued improvements in recycling habits and more attention to waste reduction.

It soon became clear, however, that it was difficult to accurately measure the two very different activities of reduction and recycling with a single, combined numerical goal. First, it is difficult to quantify waste that is never generated when successful

reduction programs are implemented. Second, the amount of waste being recycled has not been well documented among the different agencies and private firms that handle it. In 1995, the King County Council replaced the single, numerical goal with a two-tiered goal. The first component is a mission – to divert as much material as possible from disposal in a manner which reduces the overall costs of solid waste management to county residents and businesses, conserves resources, protects the environment and strengthens the county's economy (KCC 10.22.035). The second component is a more comprehensive and understandable method for measuring our progress in attaining this mission, including specific targets for residential and business recycling and disposal, as well as measures of the success of specific programs.

Since 1995, the amount of material recycled and reduced has continued to increase, but so has overall waste generation in the region, due to population, economic, and employment growth (discussed in more detail in Chapter 3). After declining to about 1,500 lbs per year in 1996, the per capita disposal rate has risen to 1,650 lbs per year in 2000 (King County disposal records). Again, this increase can be explained by regional economic growth, which leads to increases in production and consumption, and hence waste generation. It is important to note that this per capita disposal rate is still far lower than the 1989 prediction for per capita disposal of 2,486 lbs in 2000, which was expected in the absence of waste reduction and recycling programs (*1989 Comprehensive Solid Waste Management Plan*). Figure 4-1 shows the per capita recycling and disposal in lbs per year from 1977 to 2000.

Figure 4-1. Per Capita Recycling and Disposal Since 1977



It is difficult to quantify the many benefits of our regional waste reduction and recycling efforts over the last 12 years. Four benefits, however, are clear:

Extended life of the Cedar Hills Regional Landfill

The life of the landfill has been extended by approximately 8 years. In addition, successes in waste reduction and recycling have given the County flexibility in how the landfill is developed.

Avoided disposal costs

According to surveys conducted by the Washington Department of Ecology and the forecasting model generated by the County, from 1988 through 1999, about 5 million tons of waste was recycled (excluding ferrous metals) in King County. At an avoided disposal cost of $20 per ton (the approximate direct cost per ton of disposing MMSW at Cedar Hills), the total savings in avoided costs was about $100 million for County ratepayers.

Avoided collection and transfer costs

A 1996 cost/benefit analysis prepared for the County by the Sound Resource Management Group estimated that the net marginal benefit of curbside recycling is $40 per ton. This estimate includes savings in transfer and short-haul costs and benefits from the sale of recyclable material, less the costs of collection, transfer, and processing. The estimate applies to curbside recyclables only, and is in addition to the avoided disposal costs.

King County's private-sector recycling industry employs more than 3,000 people

Economic opportunities

The growth in the recycling industry has also resulted in growth of the King County economy. In 1995, a Division survey found that more than 3,000 people in King County were employed in the private-sector recycling industry, and almost $160 million worth of private capital was invested in recycling activities (*Summary Report of 1995 Surveys of Washington State Recycled Material Collectors and Haulers, Transporters, Processors, and End Users*, 1996).

Public Opinion About Waste Reduction and Recycling

Waste reduction and recycling goals are only attainable through public involvement and support. King County surveys have consistently shown strong public support for these activities. In 2000, the Division conducted a telephone survey of King County residents and found the following:

- 77 percent of residents who live in single-family homes or buildings with four units or less participate in curbside recycling; 82 percent of them indicate they are "satisfied" or "very satisfied" with their service
- 64 percent of residents said they recycle for environ mental/conservation reasons; other motivators include financial benefits, convenience, and civic responsibility

This is the kind of support that will help ensure success in meeting our future goals for waste reduction and recycling.

Where Do We Go From Here?

Both public attitudes and the numbers support the continuation of waste reduction and recycling programs and services in our region. With this 20-year planning period, the King County Council asked the Division and the cities to review the numerical waste reduction and recycling goal and consider developing a new goal that better expresses our long-term objectives and incorporates a way to measure our effectiveness more accurately (KCC 10.22.035). The section that follows presents a new recommended goal, on which our plan for the future is based.

Development of the Region's Waste Reduction and Recycling Goal for the Next 20 Years

As stated earlier, the combined, numerical goal for waste reduction and recycling proved difficult to accurately measure over time. Through the cooperative efforts of the County, the cities, and the Solid Waste Advisory Committee, a single two-tiered goal was developed. The first tier of this goal consists of six broad-based objectives established to guide the region's programs and policies for the future. The second tier comprises specific ways to evaluate our progress in fulfilling those objectives – called measurement targets. These objectives elaborate on the mission for waste reduction and recycling, established by the King County Council in 1995, to divert as much material as possible from disposal.

The six objectives, comprising the first tier of the goal, are as follows:

1. Increase efforts to encourage and promote waste reduction and its long-term benefits
2. Increase the region's recycling successes by continually improving recycling programs, while increasing incentives for waste reduction
3. Increase the demand for recycled and reused products, and create and sustain markets for recycled materials
4. Enhance resource conservation efforts by integrating waste reduction and recycling with other programs and promoting product stewardship
5. Foster sustainable development through promotion of sustainable building principles in construction projects throughout King County
6. Manage solid waste generated by city and King County governmental agencies in a manner that demonstrates leadership for residents, businesses, and institutions

The second tier of the goal – the measurement targets – warrant more explanation. The challenge is to identify reliable ways to measure the region's effectiveness in achieving the waste reduction and recycling mission. For reasons explained below, two types of measurement targets were developed – referred to as first-level and second-level targets. All of the targets are intended to be easy to understand, measurable using available data, and useful in evaluating the effectiveness of individual programs.

Data to track these targets will come from a variety of sources, such as waste monitoring reports, Division disposal records, collection reports submitted to the Division by the private collection companies, the Washington Department of Ecology Annual Recycling Survey, and others. Appendix B-1 discusses these targets and how they are measured in greater detail.

The Green Globe Awards program recognizes the outstanding efforts of businesses to reduce waste and recycle

First-Level Measurement Targets

The recommended first-level measurement targets, which will hold per resident and per employee disposal rates constant throughout the planning period, are as follows:

- **Per resident disposal rate of 18.5 lbs per week.** This rate is calculated by dividing the estimated amount of waste disposed by households by the estimated number of County residents.
- **Per employee disposal rate of 23.5 lbs per week.**

This rate is calculated by dividing the estimated amount of waste disposed by businesses in the County by the estimated number of employees.

These measurements are considered first-level targets for several reasons:

- The targets focus on disposal and indicate the combined effects of waste reduction and recycling by tracking the progress of both desired behaviors. By contrast, a recycling rate only measures progress in recycling - not waste reduction.
- The targets are overall indicators of success in recycling and waste reduction among households and businesses. They provide a comprehensive measure of progress, rather than detailed information about specific programs or waste materials.
- The targets are meaningful and easy to comprehend. Individual citizens can understand and control the amount of waste they dispose of each week.

There are several reasons why these particular first-level measurement targets (per-resident and per-employee disposal) were selected:

- The targets allow residential and non-residential waste disposal activity to be tracked separately (alternatively, having a per-capita disposal measure would combine residential and non-residential disposal). This is important because factors affecting residential disposal can differ from those affecting non-residential disposal, and different policies and programs are often directed at residences and businesses. Having two measures allows for a snapshot of how well residences and businesses are doing at recycling and reducing waste.
- The targets are specified in terms of per-resident or per-employee and they adjust for the fact that overall disposal levels will increase due to growth in the number of residents and employees.
- The targets allow for flexibility in how they are attained. Over the next 20 years, new waste types and/or sources may emerge, requiring additional program enhancements and priorities. For example, to keep residential disposal constant, it is possible that increased attention will be paid to reducing organic materials in the waste stream, or additional attention might be paid to reducing disposal among multi-family residents.
- The targets are relatively easy to measure using data on total disposal (from Solid Waste Division tonnage and transaction records), the portion of waste disposed by residential vs. non-residential customers (from waste monitoring studies), and the number of residents and employees in the County (compiled annually in the *King County Annual Growth Report*).

The Plan proposes that these targets be evaluated every three years, when new data become available from the waste monitoring studies.

First-level targets for the planning period are consistent with the tonnage forecasts in this Plan. They were derived by dividing forecasts of residential and non-residential disposal by forecasts of future population and employment, respectively. The disposal forecasts factor in the implementation of proposed enhancements in the County's waste reduction and recycling programs. As a result, the disposal targets reflect projected reductions of certain commodities in the waste stream. The targets are aggressive because several external factors tend to increase overall waste disposal. Historical data show that disposal increases when income and employment activity rise and household size decreases. Such trends are anticipated to continue into the future, suggesting that without additional waste reduction and recycling, per resident and per employee disposal would increase. Meeting the first-level targets, therefore, hinges on reducing the amount of waste disposed in the region through aggressive waste reduction and recycling practices.

Second-Level Measurement Targets

The second-level measurement targets are more detailed than the first-level targets. They provide more information about progress in waste reduction and recycling among specific generator types and commodity groups. These targets are more useful for evaluating the success of specific programs and services, and for identifying trends in recycling and disposal activity. In some cases, information to evaluate the targets is limited. As a result, they are generally more appropriate for program managers than the general public.

The second-level measurement targets include:

- Recycling rates for single-and multi-family households and non-residential entities
- Disposal rates for single- and multi-family households
- Per resident and per employee disposal rates by specific commodities, such as yard debris, food, and paper
- Individual program successes

As with the first-level targets, the second-level targets will be reviewed in conjunction with the cycle of waste monitoring studies and will be adjusted as new information becomes available and program priorities or market conditions change.

The numerical targets for recycling and disposal rates over time are shown in Table 4-1. They are intended to be consistent with the first-level targets. The purpose, definition, and data sources underlying each of these targets is explained in Appendix B-1. However, it is important to briefly explain them here:

- The *single-family curbside recycling rate* is the annual tons of MMSW recycled by single-family households through curbside programs divided by the total annual tons of single-family curbside MMSW collected. A measure for curbside programs is included because it is an important component of many cities' recycling programs.

Table 4-1. Second-Level Measurement Targets for Recycling and Disposal

	Single Family		Multi-Family		Non-residental
Year	Curbside Recycling Rate (percent)	Curbside Disposal Rate (lbs/household/wk)	Recycling Rate (percent)	Disposal Rate (lbs/household/wk)	Recycling Rate (percent)
2000 (estimated)	47%	32.4	34%	21.4	37%
2006	50%	31.4	35%	20.8	43%
2012	52%	30.7	40%	20.3	46%
2018	53%	30.5	40%	20.1	48%

- The *single-family curbside disposal rate* measures the pounds of MMSW disposed per household per week. This measure differs from the first-level target of per resident disposal because the measure only includes single-family residences; it does not include residential waste brought by self-haulers; and it is expressed in per-household terms rather than per-resident. The curbside disposal target decreases over time, largely because national demographic trends strongly suggest that average household sizes will decrease. If the first-level target is met (per-resident disposal remains constant), and there are fewer people per household, household disposal will decrease.
- The *multi-family recycling rate* is the annual tons of MMSW recycled by multi-family residences divided by the annual tons generated (recycled and disposed). Although data sources for this measure are not very well developed, the measure is included because multi-family recycling is becoming an increasingly important component of county-wide recycling programs.
- The *multi-family household disposal rate* is an estimate of the commercially collected MMSW disposed by multi-family households, divided by the estimated number of multi-family households in the County.
- The *non-residential recycling rate* is the estimated annual tons of MMSW recycled by non-residential sources, divided by the annual tons generated by such sources. Similar to multi-family recycling, data for this measure are limited. However, the measure is included because non-residential recycling is an important component of county-wide recycling programs.

Although too detailed to list here, targets for measuring success in recycling or reducing disposal of specific commodities – such as primary and secondary recyclables, and organic materials – are provided in Appendix B-1. These targets will help measure the success of individual programs directed at these commodities.

Most individual programs for waste reduction and recycling incorporate built-in mechanisms for measuring their success. For example, the region's ability to foster sustainable development is measured by tracking the number of houses built under the *Built Green*™ program each year or the number of commercial buildings certified under the *Leadership in Energy & Environmental Design* program sponsored by the U.S. Green Building Council.

The Solid Waste Division of the King County Department of Natural Resources and Parks is developing measurements to evaluate markets for recycled products, monitor consumer preference for recycled-content materials, and track sales of recycled-content products.

The six objectives and associated measurement targets together form the recommended regional goal for future waste reduction and recycling efforts.

Designation of Recyclable Materials

State statute RCW 70.95.090(7)(c) requires that local solid waste plans include a process for designating which materials will be collected for recycling. King County has classified recyclables into two categories – primary and secondary. Primary recyclables include:

- Newspaper
- Cardboard
- High-grade office paper
- Computer paper
- Mixed paper (may include paper grades listed above)
- PET (#1) and HDPE (#2) bottles, clear and colored
- Yard waste (less than 3 in. in diameter)
- Glass containers (flint, amber, and green)
- Tin cans (steel cans)
- Aluminum cans

Primary recyclables are collected at the curb

The private solid waste management companies that provide curbside collection services in the region are required to collect these materials, at a minimum. Drop boxes that serve the rural areas, operated by the County or cities, must also accept these materials.

Secondary recyclables are those with generally limited markets, a lack of collection systems, or a limited number of generators of the material. They include:

- Polycoated paperboard
- All plastics except PET and HDPE bottles, which are primary recyclables
- Bulky yard waste (greater than 3 in. in diameter)
- Wood
- Food waste
- Compostable paper
- Appliances (white goods)
- Other ferrous metals
- Other non-ferrous metals
- Textiles
- Stable wastes (animal manure and bedding)
- Motor oil
- Oil filters
- Latex paint
- Antifreeze
- Brake fluid
- Carpet
- Electronics
- Reusable household and office goods
- Reusable building materials
- Concrete
- Toilets
- Tires
- Batteries

Cities that contract for recyclable collection can opt to add these materials to household collection, commercial collection, or drop box programs. Unincorporated King County and cities where solid waste collection is regulated by the Washington Utilities and Transportation Commission (WUTC) can add these materials to residential household collection through amendments to service-level ordinances and WUTC notification procedures.

To designate new materials as primary recyclables, King County, the cities, and the private collection companies must agree that the material can be collected economically throughout the County and that there are sustainable markets for the material. To determine if there is such a consensus will require that the County work with the cities, the collection companies, and the public. Any changes in the list of primary recyclables must be coordinated with the existing city collection contracts. Changes must be coordinated with the collection companies as well to minimize their capital investment costs associated with any added collection. This process will be initiated as conditions warrant throughout the planning period.

It is expected that the list of secondary recyclables will continue to grow as new beneficial uses are found for materials currently disposed in King County. The list of secondary recyclables will be updated annually by the Division based on state recycling survey data and information from city and County programs.

Assessment of Recycling Potential in the Region

In addition to measuring the effectiveness of existing programs and services, it is important to continually evaluate regional markets and technologies to ensure those programs and services are doing everything they can to support the region's goals. The Division uses two primary tools for that purpose – periodic waste characterization studies and market assessments conducted under the Division's ongoing Waste Monitoring Program (reports contained in Appendix A-2 and B-3, respectively). The County will work more closely with the cities in designing and conducting future studies and market assessments for the region.

An important step in establishing regional measurement targets is understanding what makes up the disposed waste stream and how much of that stream could be cost effectively recycled, reused, or reduced. Some of the key questions to consider include:

- What are the largest components of the waste stream that, because of their quantity, offer the greatest potential for reducing disposed tonnage?
- Are existing collection systems fully utilized?
- What is the capacity of processing facilities and end markets to handle additional tonnage?
- What are the costs and challenges involved in developing alternative collection systems to divert additional materials?
- How much ability does local government have to influence markets for specific materials?
- What smaller components of the waste stream are good targets for diversion programs because of their high value end use?

The Division conducts a waste characterization study every three years that provides detailed information about what materials are being disposed and by whom – single family residents, multi-family residents, or businesses. The most recent study was completed in 2000.

The 2000 waste characterization study identified several materials that are still prevalent in the disposed waste stream and thus are likely targets for increased diversion through waste reduction or recycling:

- **Primary residential recyclables:** There are still more than 100,000 tons per year of recyclable paper grades, glass, steel and aluminum containers, and #1 and #2 plastic bottles in the residential waste disposal stream. Curbside recycling is available for these materials in most of King County, and is often more cost effective than disposal. A 1995 study prepared for the Division by Sound Resource Management Group estimated that each additional ton diverted from residential disposal to existing curbside recycling programs would reduce the per ton cost by $2.00.
- **Yard debris:** About 70,000 tons per year of yard debris is being disposed. Nearly half of the yard debris is taken to transfer stations by self haulers because of the limited availability of facilities that accept source-separated debris.
- **Food waste and compostable paper:** About 138,000 tons per year of food waste is disposed, in addition to about 50,000 tons of compostable paper (paper not suitable for recycling as mixed waste paper). Food waste represents a growing percentage of the waste stream, increasing from around 12 percent in 1994 to 15 percent in 2000. Food waste can be composted and used as a soil amendment product. Currently, there is not sufficient capacity among the existing regional compost facilities to handle the volume of food waste generated. In addition, there are cost and environmental issues associated with collecting source-separated food wastes.
- **Non-residential paper and cardboard**: About 80,000 tons of paper and cardboard, one of the largest components of the non-residential waste stream, is still being disposed. These materials are generally of higher value than the mixed paper collected from residences. Unlike residential collection, non-residential recycling costs are not embedded in the garbage collection rate. Consequently, non-residential recycling costs vary according to fluctuating commodity markets, and recycling service may not be economical for small or outlying businesses.
- **Green and urban wood**: About 67,000 tons of recyclable wood is still disposed. Green wood consists of materials such as stumps, limbs, and small trees. Urban wood is primarily building materials and pallets. Like commercial paper, there are established facilities for using these types of wood, but fluctuating market prices do not always encourage recycling.

Consumer preferences and sales of recycled content products are evaluated through programs such as Get in the Loop

Every three years, the Solid Waste Division conducts market assessments for recyclable materials in the King County area to adapt its programs to emerging market needs. They look not only at the amount of materials being recycled but also at opportunities to influence the market in using those recycled materials. The market assessments seek to answer the following questions:

- What problems, if any, exist with the supply, demand, or infrastructure – *is there a need?*
- What potential exists to either expand demand or increase supply to existing or anticipated end markets – *is there an opportunity?*
- Can King County on its own or in partnership with other local governments affect the supply, demand, or infrastructure for each targeted material – *is there an ability to influence?*

The Solid Waste Division uses information from these assessments to rank recyclable materials as high, medium, or low priority and then focus technical assistance and marketing programs on the materials with the highest rankings. Using this information along with the waste characterization study, the Division is able to assess the potential for recycling specific materials and develop programs that target them. Table 4-2 lists various recyclable and reusable commodities ranked by priority and summarizes the status of the market for each, as well as existing and planned programs. This information was used in the development of recommendations presented in this chapter.

Issues

Several broad issues need to be addressed to enable the region to meet the aggressive goals for waste reduction and recycling for the next 20 years, including:

- How to improve opportunities for the collection and composting of organic materials
- How to improve the overall availability of recyclable materials collection and processing
- How to foster product stewardship
- How to improve recycling opportunities for construction, demolition, and landclearing debris (CDL)
- How to identify and develop future markets for recyclable materials
- How to foster sustainable building practices throughout King County

Each of these issues is discussed in some detail in the sections that follow. A final section presents the proposed recommendation for this planning period and a detailed account of the programmatic and administrative changes that would accompany it.

Table 4-2. Market Assessment for Recyclable and Reusable Commodities

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW[a]	Percentage of MMSW Stream	Challenges to Increasing Diversion	State of the Market	Existing Program Coverage	Proposed Action
Market Potential: High						
Food waste and compostable paper	186,200	19.7%	Resolving issues regarding cost and environmental impacts of collection	Potentially insufficient processing capacity if diversion increases; additional end-product markets needed	Initial studies and pilot programs: generator profiles, growth trials, consumer attitudes toward source separation; additional study of processing options underway	Initiate pilot programs to test residential co-collection with yard waste; develop strategies to increase processing capacity and strengthen end-use markets, as needed
Urban wood[b]	65,000	6.9%	Achieving greater participation in on-site source separation programs; providing drop-off facilities for self haulers	Improved access to markets needed for wood processors	Technical assistance and education to businesses and construction industry on waste reduction and recycling options; sustainable building programs; collection area at Enumclaw; collection at special recycling events; *Green Works*™ *RecognitionProgram*; *LinkUp*, a technical assistance program for manufacturers; exploring the use of specifications to enhance markets for this commodity	Continue existing programs; increase recycling opportunities at upgraded County transfer stations
Mixed waste paper	66,100	7%	Increasing participation by small and outlying businesses, which often have high collection costs; increasing participation and efficiency of residential collection programs; reducing excess packaging	Potential growth in the supply of mixed waste paper will increase the need for processing capacity and end-product markets	Curbside residential collection and education programs; business technical assistance, education and recognition; packaging reduction program; *LinkUp*, a technical assistance program for manufacturers	Continue existing programs; expand product stewardship programs

Table 4-2. *continued*

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW[a]	Percentage of MMSW Stream	Challenges to Increasing Diversion	State of the Market	Existing Program Coverage	Proposed Action
Mixed/sorted glass[c]	19,400	2.1%	Increasing participation and efficiency of residential collection programs	Processing capacity and markets for mixed glass needed because collectors are beginning to reduce color sorting, which has previously commanded strong markets	Curbside residential collection and education programs; collection areas at transfer facilities; *LinkUp*, a technical assistance program for manufacturers	Continue existing programs
Market Potential: Medium						
Yard waste[d]	70,100	7.4%	Increasing drop-off opportunities for self haulers and landscapers; increasing on-site management of yard waste	The supply of yard waste and demand for composting products appear in balance, but could be altered by any significant change in supply of organic material or processing capacity	Curbside residential collection and education programs; collection areas at Enumclaw, Factoria, Vashon, and Cedar Falls; grasscycling mower and backyard compost bin distribution programs; pilot program to permit on-farm yard waste composting facilities; research on land application of minimally processed yard debris	Continue existing programs add yard waste collection areas at upgraded transfer facilities
Livestock waste[e]	Not disposed as MMSW	N/A	Improving on-site manure management; developing manure collection and processing opportunities	Inadequate processing capacity for increased tonnages; additional end-product markets needed	On-site management technical assistance	Continue on-site technical assistance; expand collection opportunities; develop strategy to increase processing capacity and end-use markets

Table 4-2. *continued*

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW[a]	Percentage of MMSW Stream	Challenges to Increasing Diversion	State of the Market	Existing Program Coverage	Proposed Action
Gypsum[b]	12,900	1.4%	Increasing source separation at construction sites	Percentage of recycled gypsum that can be used in wallboard is limited; increase in end-use demand is needed	Technical assistance and education	Continue existing programs
Film	49,800	5.3%	Increasing collection opportunities for smaller commercial generators; expanding to residential generators	Markets for plastic film limited; a potential building composite application may provide basis for a finished product supply network	Provide information to generators about private collection opportunities	Continue to provide information; periodically reassess opportunities for expansion to residental generators
Other plastic containers (not #1 or #2 bottles)	7,400	0.8%	Revising existing service levels and city collection contracts; re-educating public	Regional infrastructure limited; end markets will need assistance when plastic containers are collected curbside	Collection at special recycling events	Evaluate markets and and collection/processing costs; coordinate with cities to add to curbside programs if feasible
Green wood[c]	2,000	0.2%	Expanding collection opportunities	Current end-market adequate, though market demand could grow over time	Collection at Enumclaw and special recycling events	Continue existing programs; increase recycling opportunities at upgraded County transfer stations
Market Potential: Low						
Cardboard and kraft	58,300	6.2%	Increasing curbside and commercial collection participation	Little opportunity for King County to influence global markets	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities; packaging reduction programs	Continue existing programs

Table 4-2. *continued*

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW[a]	Percentage of MMSW Stream	Challenges to Increasing Diversion	State of the Market	Existing Program Coverage	Proposed Action
Newspaper	31,400	3.3%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
Other ferrous metals	29,200	3.1%	Lack of convenient drop-off sites for recycling	Markets fairly stable and well defined	Collection area at Enumclaw	Expand collection areas at upgraded transfer stations
Textiles	17,900	1.9%	Degree of coverage by charities providing collection services unknown	Markets fairly stable and well defined	Collection areas at First Northeast and Bow Lake	Expand collection areas at upgraded transfer stations
High grade paper	13,600	1.4%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
Steel cans	8,000	0.8%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
Aluminum cans	4,300	0.5%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs

Table 4-2. *continued*

Commodity Group	Year 2000 Estimated Tons Disposed as MMSW[a]	Percentage of MMSW Stream	Challenges to Increasing Diversion	State of the Market	Existing Program Coverage	Proposed Action
HDPE #2	4,400	0.5%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
PET #1	3,800	0.4%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
Aluminum scrap	2,300	0.2%	Increasing curbside and commercial collection participation	Markets fairly stable and well defined	Curbside collection with mixed waste paper; technical assistance to commercial generators; collection areas at transfer facilities	Continue existing programs
White goods[c]	Not disposed as MMSW	NA	High diversion rate achieved	Markets fairly stable and well defined	Disposal ban; directory of recycling opportunities; collection at Enumclaw and special collection events	Continue existing programs
Market Potential: Not Ranked						
Other[b]	292,500	31%				
TOTAL	945,500[1]	100.0%				

Footnotes for Table 4-2:

a. Estimated waste tonnages were obtained by applying waste composition percentages to estimated year 2000 MMSW disposal tonnage (rounded to nearest 100 tons). Categories in the table conform to those described in the *Assessment of Markets for King County Recyclable Materials* (Appendix B-3)

b. Urban wood includes building materials such as wood packing, construction and demolition waste, cabinet and furniture trimmings, dimensional lumber, and panelboard, as well as pallets and engineered wood products. A significant amount of urban wood and gypsum is received as CDL waste at private CDL handling facilities. The figures here only represent the amount of these materials disposed as MMSW.

c. The table estimates the total amount of mixed and container glass in the MMSW stream. These two subcategories are treated separately. Mixed glass is ranked high for market potential, whereas sorted glass ranks low.

d. Yard waste does not include large prunings, which are included as green wood.

e. An estimated 290,000 annual tons of livestock waste (primarily horse manure and bedding) is currently not disposed as MMSW, but is managed on-site in a variety of ways, including land application, stockpiling, and composting. Additional environmentally beneficial off-site management options are needed.

f. Green wood includes unmilled wood such as stumps, limbs, roots, small-diameter tress, prunings, and other woody material.

g. White goods are currently not disposed in the MMSW stream, but are recycled.

h. Other includes a variety of materials, such as CDL, diapers, and tires that do not individually comprise a significant portion of the MMSW stream.

i. Year 2000 MMSW tonnage rounded to the nearest 1,000 tons; totals may not add due to rounding.

Management of Organic Materials

Programs for collecting and composting yard waste have been successful in reducing the volumes that enter our regional waste stream; however, yard debris, food, vegetative and wood wastes, and soiled paper still comprise approximately 30 percent of the mixed municipal solid waste stream in King County (Cascadia 2000; Appendix A-2). The technology now exists to recycle and reuse these materials, on a municipal or regional scale, in a way that is beneficial to the environment and the economy.

Additional organic materials are being studied for their reuse potential, including agricultural wastes and biosolids (a by-product of wastewater treatment). Currently, state laws and County ordinances hold animal owners responsible for managing agricultural wastes on their properties. All biosolids are beneficially reused, and a portion of the biosolids generated in the region is managed through a composting program established by the Wastewater Treatment Division. Potential methods for managing these two organic wastes along with other organic materials, or separately, need to be studied further.

There is currently one large and a few small-to-medium sized organic material-processing facilities operated by private companies in the region. Most of these facilities, however, currently compost only yard waste and some food waste. One of the facilities is permitted to compost horse manure. If new programs are implemented and significant volumes of additional organic materials are diverted from disposal, more capacity might be needed in the future to handle the growing volume of yard wastes and other materials.

Several options are available for expanding the reuse of organic materials, including land application, on-farm composting, and development of more small handling facilities in the region. Ongoing activities include examining the need for additional composting capacity, coordinating with other public and private agencies regarding collection and management options, and evaluating comparative costs of the increased use of sewage digesters for food waste.

Soils and Organics Recycling

In the coming years, more attention will be paid to the role that organics recycling has in improving soil quality. Soils play a critical role in the natural environment. They naturally regulate the flow of water, and help to bind and degrade pollutants. Billions of organisms living in healthy soils consume organic material and help it retain air and water.

Human activity often compacts, removes, and erodes healthy, native soils. The resulting decrease in organic matter inhibits the soil's ability to hold water, thereby increasing surface water runoff. In addition, plant growth is suppressed due to lack of nutrients, thus requiring the need for chemical fertilizers and pesticides. Using composted organic materials to replace organic content can help to restore the soil's environmental function and role in the ecosystem.

Collection and Management of Recyclable Materials

Level of Services Provided at Collection Facilities

Almost all primary recyclables (newspaper, mixed paper, PET and HDPE bottles, glass containers, tin and aluminum cans) are accepted at the County's eight transfer stations and two drop boxes, except at the Algona Transfer Station, where there is presently no recyclables collection. Areas for collecting source-separated yard waste are available only at the Enumclaw and Cedar Falls facilities, and the Factoria station dur-

Several private companies operate organic-material processing facilities in King County

ing the night shift. At the public meetings conducted during Plan development, citizens expressed a strong desire for more recycling services at the transfer stations.

The County will be developing programs to provide for affordable collection and recycling of woody debris generated by major storm events or for residents in areas affected by the Puget Sound Clean Air Agency's burn ban.

Residential Collection

As discussed in more detail in Chapter 5, additional materials are being considered for recyclables collection at both the curb and the transfer facilities. These materials include polycoated paper, aseptic packages (such as juice boxes and similar containers), textiles, all plastic containers (Numbers 1 through 7), and food wastes for composting. In addition, the County and the cities have begun looking at commingled (one large bin) instead of separate bins for collecting recyclable materials at the curb. The City of Seattle recently converted to this type of collection system. Both of these issues are discussed further in Chapter 5.

Commercial Collection

As with residential recycling, recycling in the business community is voluntary. Where it is economical for businesses to participate in recycling programs, they do. In some cases, however, it costs businesses more money to recycle than to simply dispose of their wastes. This is especially true for small businesses where recyclables collection may be difficult because of location or smaller volumes of materials. Currently, a large quantity of recyclable paper and cardboard (20 percent of the non-residential waste stream; Appendix A-2) is still being disposed; however, addressing the special collection needs of small businesses would most likely improve that recycling rate.

The County will be working with the cities and private collection companies to improve recycling in the small business community. The County will also work to address the recycling needs of small businesses through more technical assistance, with programs that target recycling and waste reduction in the workplace.

Increased participation in recycling by businesses could also be achieved through legislative and regulatory means. For example, bans can be established on the disposal of designated materials or requirements can be set for the minimum recycled content in a certain product, such as 50 percent recycled content in newsprint.

Processing Facilities for Recyclable Materials

Materials that are collected in recycling programs are usually transported to a local facility that processes the raw materials and transforms them into commodities to be sold in the marketplace. Historically, the processing of recyclables in King County has

been done by the private sector. For some materials, such as the paper and containers collected in curbside programs, processing facilities clean and bale the materials and sell them as feedstock for use in the manufacture of products, both within and outside of the region. For other materials, the processing facility manufactures a final product. As additional recyclable materials are collected, more processing capacity in the region may be needed.

To be consistent with the policies and guidelines in this Plan, processing facilities in King County, including composting facilities, must meet the following criteria:

- Materials must be source separated by the generators prior to collection for delivery to the processing facility
- All residual materials from a processing facility must be disposed within the King County disposal system
- Facilities must comply with solid waste permit requirements of Public Health – Seattle & King County
- Facilities must comply with the Minimum Functional Standards established by the Washington Department of Ecology and codified in the Washington Administrative Code
- Facilities must comply with all applicable land use, site development, water quality, and air quality regulations and requirements

Many businesses may reduce waste and their disposal costs through waste paper recycling

Integration with Other Resource Management Programs

Another challenge facing waste reduction and recycling in the future is to ensure that King County residents and businesses are aware of available programs and services. Increasing coordination among organizations and agencies that offer similar programs may help show the link between waste reduction and recycling and broader environmental concerns such as water quality, habitat management, and agricultural preservation. For example, the *Soils for Salmon* initiative promotes the beneficial reuse of organic materials to preserve and enhance native soils and support salmon recovery. This program teams the efforts of the Washington Organics Recycling Council and other Puget Sound agencies to work with the construction industry in preventing the disturbance and removal of native soils during construction and demolition projects. Under another program, discarded Christmas trees have been used for habitat restoration along salmon-bearing streams.

Product Stewardship

Product stewardship is a principle that directs all who come in contact with a product during its life cycle to minimize the impacts of that product on the environment. This principle applies to designers, suppliers, manufacturers, distributors, retailers, consumers, recyclers, and disposers. Everyone shares in the responsibility.

There are four primary reasons for instituting product stewardship policies in King County:

- Lost resources, including energy and raw materials
- Increasing amounts of garbage
- Rising costs to ratepayers for managing waste materials
- Potential harm from exposure to toxic materials used in products

Currently, manufacturers have little incentive to design products that minimize environmental impacts. Product stewardship encourages manufacturers to think differently about resources and materials, so that toxicity reduction, energy conservation, reuse, and recycling are considered at the product design stage. By placing greater responsibility on manufacturers and purchasers, product stewardship can also reduce the costs to government and citizens for pollution control, energy usage, and disposal of non-recyclable products.

In its first four months, the County's Computer Recovery Program netted more than 3,500 computer monitors for recycling

In many parts of the world, including most European countries, mandatory "extended producer responsibility" policies have been established that require manufacturers to take responsibility for end-of-life management of their products. In the United States, there has been little support at the federal level for such regulatory policies; however, several state and local governments, with the help of the U.S. Environmental Protection Agency (EPA), have been exploring product stewardship options that can be implemented at the regional level.

The Solid Waste Division has joined with other governmental agencies, including Seattle Public Utilities, Snohomish County Solid Waste, EPA Region 10, Washington Department of Ecology, Oregon Department of Environmental Quality, Clark County, City of Portland, and Portland Metro, to form the Northwest Product Stewardship Council (NWPSC). The mission of NWPSC is to integrate product stewardship into the policy and economic structures of the Pacific Northwest. In 1999, NWPSC hosted a series of meetings with representatives from industry, academia, and environmental groups to look at opportunities for voluntary product stewardship as well as regulatory options that could be implemented at the regional level. A regional conference drawing more than 200 attendees was held in April 2000 to gain better insights on programs and policies that are working elsewhere. The NWPSC plans to continue fostering dialogue with the private sector to develop criteria for evaluating voluntary efforts, and to provide information about product stewardship policy options to local and state decision makers.

The following product stewardship projects are underway in King County in partnership with other jurisdictions:

- The pilot *Computer Recovery Program* (King County, Seattle, Local Hazardous Waste Management Program) has developed a network of collection points at retail outlets for old computers and monitors
- The *Environmentally Preferable Computer Purchasing Project* (NWPSC, funded by King County and Seattle) has published a guidebook for public and private purchasing managers and is working with major purchasing entities to develop a pilot program
- The *Retail Apparel Product Stewardship Demonstration Program* (King County, Seattle) is working with major retail apparel companies based in the Northwest to phase out non-recyclable packaging, expand reuse of shipping containers, and take back spent products
- The *Retail Grocery Product Stewardship Demonstration Program* (King County, Seattle) is working with grocers and local producers to expand the use of reusable shipping containers
- The *Medical Industry Waste Prevention Roundtable* (King County, Seattle, EPA) convenes representatives from medical institutions and biotech laboratories throughout the region to develop strategies for reducing and improving management of medical waste

About 90 percent of the CDL materials from the Kingdome implosion have been recycled

Recycling of Construction, Demolition, and Landclearing Materials

The recycling and reuse of CDL materials in King County has proven to be economical for construction contractors as well as beneficial to the economy and the environment in general. There are dozens of privately operated CDL processing facilities and recycling drop-off locations in King County and the surrounding region. Easily recycled CDL materials include concrete, asphalt, rock and brick, wood, metals, and cardboard. In recent years, CDL recycling opportunities have expanded to include carpet, ceiling tile, asphalt roofing, and gypsum drywall.

The location and convenience of recycling and drop-off facilities, as well as transportation costs, can play a large part in the decision to recycle or reuse CDL materials. Increasing the number of locations that can accept various CDL materials for recycling is needed. For example, there is only one recycling facility that accepts asphalt roofing, located in Pierce County. This location is far more convenient for contractors working in south King County than in the north end. CDL recycling could be expanded by upgrading existing private CDL receiving facilities in the region; however, this expansion may

require amending their current permits with Public Health – Seattle & King County to incorporate new recycling equipment or processes. Expanding the reuse of salvaged or recycled building materials is also necessary to support increased CDL recycling and recovery activities. Currently, there are limited opportunities to purchase these materials because of the large warehouse space necessary to store them. Only three major retail outlets exist in King County today, and they cater primarily to the residential market.

To further promote CDL recycling and reuse, King County subscribes to and actively promotes the Reusable Building Materials Exchange (RBME). RBME is an online, user-driven Internet site that allows commercial builders and residents to list and browse available building materials. The RBME site is being expanded so users can post pictures of available items. The RBME site has grown to more than 300 plus listings per month. It can be accessed at http://dnr.metrokc.gov/swd/rbme/. The success of the RBME site led the Division to create a website that will allow for the exchange of all types of materials between residents and businesses. Currently called The Exchange, this Internet-based service recently became available online.

Fostering Sustainable Building Principles

A number of educational outreach efforts have been used to promote sustainable, or green building, in construction projects throughout King County. Because sustainable building involves many disciplines, the most effective approach to conveying the message has been to partner with professional associations whose members have a particular interest in learning about green building methods. Partnerships with the American Institute of Architects, the Master Builders Association, and the U.S. Green Building Council have proven very effective in reaching a large contingent of commercial and residential building professionals. Exploring the links between sustainable building and other environmental issues has also proven effective. For example, salmon recovery projects tie in well with several sustainable building strategies and will continue to be a driver in our region with continued developments under the Endangered Species Act.

King County Leads by Example

The recently constructed King Street Center is the first large County building project in which major sustainable design features have been incorporated. Built by a partnership of public agencies and private contractors, the eight-story building models the latest in resource-saving materials and energy efficiency. It houses the Departments of Transportation and Natural Resources and Parks. Sustainable building design features include:

- *A water reclamation system used for flushing the toilets*: Rainwater is collected in three 5,400-gallon tanks on the roof, then filtered and pumped to the toilets. This system saves approximately 1.4 million gallons of domestic water use a year.
- *Pre-owned carpet that has been refurbished and re-dyed with a new pattern*: Using refurbished carpet throughout the building spared approximately 160 tons of used carpeting from landfill disposal.
- *A lighting system that operates on only 0.86 watts per square foot*: The Washington Energy Code allows designers to use up to 1.3 watts per square foot. The County's lighting system is about 28.4 percent more efficient than the code requires.
- *An 80 percent recycling and salvage rate for job-site construction materials.*
- *Art throughout the building that incorporates recycled materials.*

The *Built Green*™ program was kicked off in 2000. A partnership of King County, Snohomish County, and the Master Builders Association, this environmental building program has set a goal of making 5,000 *Built Green*™ homes available to consumers by 2010. Visit www.builtgreen.net for more information. King County has also led the effort to create a local chapter of the national U.S. Green Building Council here in Puget Sound, involving architects, designers, and builders. The goal is to hasten the adoption of green building practices into mainstream use, in part through increased support for educational events such as the American Institute of Architects *What Makes It Green?* conferences, and the Master Builders *Build Green for Profit* workshops.

The County also offers on-line access to information about recycled-content products and sustainable building practices. The website – *EnCompass: Map of Recycled-Content Buildings* found at http://dnr.metrokc.gov/market/encompass – is designed for architects, developers, builders, engineers, and others to see what recycled-content construction materials are currently used in the Puget Sound area. The site provides information on how to contact the project proponents as well as access to an on-line map that shows where specific projects are located.

Market Development for Recyclable Materials

In 1989, the King County Council established the King County Commission for Marketing Recyclable Materials (Marketing Commission). The Marketing Commission was charged with maintaining and developing viable markets for recyclable materials to complete the recycling loop. This entailed working with businesses to incorporate recycled materials in their products and manufacturing processes, and promoting the purchase and use of recycled materials and products by consumers and businesses. In 2001, the Marketing Commission was disbanded, and its programs were incorporated into the Solid Waste Division's Waste Reduction and Recycling Section.

Paper makes up a high percentage, by weight, of the materials recycled at the curbside

Two key programs run by the Clean Washington Center and the Washington Department of Ecology, which supported market development in the past, are no longer active. The absence of these programs has left a void at the state level. In the past, County programs focused on consumers to promote the demand for recyclable materials. Recently, the County has developed programs to work with manufacturers as well, addressing the development of the market infrastructure as a whole.

To guide the development of the market infrastructure, in 1998 the Marketing Commission prepared the *Assessment of Markets for King County Recyclable Materials* (Appendix B-3). Some of the key challenges identified in the report include:

- **Enduring the consequences of a sustained downturn in global commodity markets:** Investments in recycling and the development of a recycling infrastructure have occurred over the last 10 years, when the local economy has been robust

and growing. The positive economics of recycling are due in large part to the prices paid for these recycled commodities in the marketplace. The potential exists, however, for a sustained downturn in these global commodity markets – putting prices for all recyclables at historic lows for a considerable period of time.

- **Maintaining the viability of fragile markets for mixed waste paper and glass:** Markets for glass and mixed paper, which make up a very high percentage of the curbside mix by weight, are vulnerable because of the limited uses for them. Market development efforts are needed to ensure that diverse stable markets continue to exist for these materials.
- **Ensuring that there is a balance in the supply and demand for organic materials:** The collection and composting of food and animal wastes could significantly increase the recycling rate in King County. Any increase in supply, however, must be matched by a corresponding increase in processing capacity and demand for organic materials. Market development activities will need to increase if collection programs expand to take in these materials.
- **Being more proactive:** The public sector can seize opportunities to develop markets, especially for materials such as plastics and engineered/composite wood products. The public sector has an important role in taking forward-looking action to ensure that markets are maintained or enhanced.

Utilization of Landfill Gas

Another waste the Solid Waste Division is turning into a resource is the gas generated by garbage decomposition in the Cedar Hills Regional Landfill. The gas is currently collected at the landfill using a series of wells, trenches, and piping, and then burned off using a system of flares.

The Solid Waste Division is evaluating ownership and financing methods to use the landfill gas in an energy generation facility either on or off the landfill property. There is high interest among both public and private energy companies and utilities. When implemented, the new facility would become one of the largest landfill gas generation facilities in the nation.

Recommendations

Criteria used to develop a recommendation for waste reduction and recycling include the cost of providing service, impact on waste diversion, feasibility of implementation, and public acceptance. Concerns and ideas from the cities and the citizens, both during initial development of the Plan and during the public comment period for the draft, have been folded into the final recommendation.

As discussed in more detail below, the final recommendation is to enhance existing waste reduction and recycling programs, to add more recycling opportunities at the transfer stations, to pursue markets for additional diversion of organic materials, and to increase marketing efforts to support and further program goals. The draft Plan looked at several modified approaches that were ruled out for various reasons. One approach

was to maintain existing programs as they are. Since this approach would fall short of the region's goals for waste reduction and recycling in the future, it was not selected. Another approach was to dramatically increase the diversion of organic materials in the region. This approach was not selected because unanswered questions remain about costs and environmental concerns. Before promoting the diversion of additional quantities of organic materials, the Division will need to address concerns about the capacity of processing facilities in the region for handling increased volumes and the cost effectiveness and public health impacts of alternative collection systems. A third approach looked at increased legislation, such as bans on certain materials in the waste stream and mandatory recycling, to reach system goals. This approach was not considered in the final recommendation because it is costly to implement and is generally unpopular with the public. More information on the three approaches that were not selected is presented in Appendix A-1.

In developing the final recommendation, the cities and County were assumed to have the following roles and responsibilities:

- The cities and County will continue to provide educational programs and technical assistance to promote waste reduction and recycling to businesses, residents, and schools
- The cities and County will maintain and enhance current residential collection service levels for recyclables
- The County will continue to provide grant funding to cities to support their waste reduction and recycling programs
- The County will play an increased role in developing diversion opportunities for animal manure and other organic materials
- The County will continue to develop markets for recycled material
- The County will provide technical assistance to manufacturers in the use of recycled materials and the application of product stewardship principles
- The County will continue to promote recycled-content products in the marketplace

More information on specific programs offered by the cities and the County is provided in Table 4-3 at the end of this chapter.

Key components of the Plan's recommendation for waste reduction and recycling are presented below. Specific steps to promote, educate, or assist the region in increasing waste reduction and recycling accompany each component.

1. **Continue and expand education, promotion, incentive, and technical assistance programs related to waste reduction, source reduction, resource conservation, and recycling**
   - Work directly with residents and businesses as well as through the news media. Identify information needs, and target messages and programs to meet those needs.

- Publicize what residents and businesses can do through individual action – such as reducing junk mail, grasscycling, composting, making smarter purchasing choices, repairing goods rather than throwing them away, purchasing reusable items, and more.
- Educate residents about the benefits of using compost to enhance soils.
- Target specific behaviors that will increase waste reduction and recycling. These behaviors could include changing shopping habits, such as buying recycled products, reusing shopping bags, or buying in bulk; choosing to use services that incorporate environmental practices; and encouraging office practices such as double-sided copying and printing. Incentives, such as recognition programs, will be incorporated where appropriate.

Composting is one of the actions individuals can take to practice waste reduction and resource conservation

- Target specific commodities, such as computers, where there is significant opportunity to reduce waste or increase recycling.
- Expand the use of Master Recycler Composter volunteers for outreach activities determined to be regional priorities, such as grasscycling and multi-family household recycling.
- Educate children about waste reduction, recycling, and conservation issues. Programs will be offered in schools as well as through other community organizations and activities.
- Expand the cities' and County's efforts to eliminate or reduce waste at the source, and promote successes as models for businesses.

2. Continue to collect primary recyclables including glass, tin and aluminum cans, mixed waste paper, newspaper, #1 and #2 plastic bottles, and yard waste and evaluate adding other materials as either primary or secondary recyclables by targeting specific commodities

- Look at materials for increased diversion and/or reduction, based on the following criteria:
  - quantity in the waste stream that could potentially be diverted
  - resources and energy saved by reduction or recycling
  - availability of markets
  - compatibility with existing collection/processing systems
  - public acceptance
  - cost effectiveness.
- Consider commodities such as all plastics, textiles, computers, commercial paper, and CDL debris (these commodities would be considered secondary recyclables, unless they are added to the curbside collection program).

3. Continue and expand promotion of existing material exchanges and reuse centers; evaluate development of other venues for reuse

- Promote exchanges to bring useful commodities together with the people who need them. Support and promote private-sector and non-profit waste reduction and reuse opportunities, such as Second Harvest and the Computer Charity Bank, and help create new programs as needed.
- Expand opportunities for recovery of reusable items at the County's transfer stations – such as the Reuse Collection Project at the First Northeast Transfer Station in cooperation with Seattle Goodwill.

4. Develop and implement a regional product stewardship strategy

- Emphasize product stewardship as a method of minimizing the environmental impacts of material use throughout a product's life cycle.
- Take a leadership role in analyzing regional and national policies to advance product stewardship through participation in the National Product Stewardship Council.
- Support state and national legislative efforts that offer feasible regulatory strategies for increasing product stewardship, including recycled-content legislation and take-back initiatives.
- Promote the ethic of product stewardship to the public and businesses.
- Provide education and assistance and, as appropriate, develop partnerships with manufacturers and other businesses to reduce packaging and incorporate environmental considerations into product design.
- Develop and implement programs to reduce disposal of electronics, including computers and televisions, and pursue partnerships to increase capacity for take-back and disassembly of electronic equipment.
- Coordinate with local hazardous waste management programs to promote take-back of household and small-quantity generator hazardous wastes such as motor oil, paint, fluorescent light bulbs, and household batteries.
- Assess opportunities to expand retail take-back efforts for latex paint, nicad batteries, and electronics.

Events such as the EnviroExpo provide opportunities to integrate recycling messages with related messages

5. Integrate programs with other conservation activities

- Support innovative joint projects with research institutes for sustainable building, organic materials recovery, product stewardship, and related programs.

- Work more closely with the Northwest Coalition for Waste Reduction and the National Waste Reduction Coalition to plan and execute promotion, education, and assistance programs that encourage source reduction, reuse, and resource conservation.
- Continue to integrate waste reduction and recycling with other related environmental information. Help people make the link between waste reduction and recycling and water quality, wildlife habitat, open space protection, and other environmental programs promoted by the Department of Natural Resources and Parks.
- Coordinate with other agencies to develop and promote best landscape management practices, including water conservation, reduced use of pesticides, and grasscycling.
- Focus on the "pollution prevention " angle. Use strategies adopted elsewhere in the country that focus on prevention as a model for educating and assisting at schools, residences, and businesses.
- Work with conservation groups on joint issues such as grasscycling. Complement and, when appropriate, coordinate efforts with non-governmental and other non-profit organizations that support resource conservation.
- Leverage available dollars by joining forces with cities, other counties, and organizations on projects that address regional issues.

6. Evaluate recycling opportunities at County transfer stations

- Add source-separated yard waste collection areas at transfer stations wherever possible. Institute a yard waste disposal ban for self haulers after these areas are provided.
- Maximize recycling and reuse opportunities for materials collected at transfer stations, taking into consideration user needs, site constraints, costs and benefits, and market availability.
- Make waste reduction and recycling a priority at new and renovated transfer stations.
- Improve on-site education opportunities for customers to increase recycling and reuse, and to improve the quality of materials collected.
- Evaluate the potential for adding new materials for recycling at transfer stations, including appliances, scrap and processing metals, used oil and antifreeze, computers, CDL, household hazardous waste, and reusable household items.

7. Promote environmentally sound management of organic materials

- Develop initiatives for improving organic materials management within the Department of Natural Resources and Parks.
- Develop programs for affordable collection and recycling of woody debris generated by major storm events or for residents in areas affected by burn bans.

- Promote improvement of soil quality to support pollution prevention.
- Provide training and assistance to farmers to help them obtain permits that allow them to compost organic materials.
- Encourage education to reduce the amount of bedding used by horse owners.
- Implement pilot manure collection programs to test the feasibility of collecting manure from individual farms.
- Expand manure exchange programs whereby residents who have horse manure are put in touch with residents that need compost materials.
- Continue funding education about on-site compost bins.
- Expand organic material waste reduction programs, such as backyard composting, grasscycling, and on-site yard waste chipping.
- Implement and evaluate pilot programs to expand food waste collection, both residential and commercial.
- Coordinate with biosolids recycling programs.

8. Develop ways to improve the recycling rate in the small business community

- Consider using smaller collection containers that could be handled in the same manner as those used for single-family residences.
- Work with the WUTC, the cities, and private collection companies to improve the collection system for small businesses, provide better information about recycling options, make it more economical for them to recycle, and establish incentives for recycling and waste prevention in the workplace.
- Work with the cities to develop zoning codes that will allow adequate space for recycling for small businesses.

The Reuse Collection Project in cooperation with Seattle Goodwill at the First Northeast Transfer Station

9. Expand market development programs for recyclable materials

- Design and enhance marketing and technical assistance programs that develop markets for recyclable materials, with particular attention to materials identified in the *Assessment of Markets for King County Recyclable Materials* (see Appendix B-3).
- Work to integrate the use of recycled materials into broader sustainable efforts, especially product design and manufacturing, architecture, and construction.
- Bring consideration of recyclable materials into product stewardship activities.
- Continue and enhance promotion of consumer and business use of recycled materials and products.

10. Expand recycling/reuse options for CDL materials

- Evaluate the existing infrastructure for CDL recycling and work with the private sector to expand recycling opportunities in all areas of the County.
- Work with the permitting agencies in King County to educate and instruct the building industry on the availability of CDL recycling facilities in the region.
- Assess the feasibility of requiring recycling plans for demolition and building permits in King County.

11. Continue and expand promotion of green building programs

- Promote the Green Building Initiative in all capital projects throughout the County.
- Provide training and assistance on the *Leadership in Energy & Environmental Design* (LEED) green building standards.
- Promote green building in the private sector through continued support of rating programs, such as *Built Green*™ for residential buildings and the LEED program for commercial structures.
- Continue funding green building educational workshops with partners such as the U.S. Green Building Council and the American Institute of Architects.
- Continue the regional leadership role of the Solid Waste Division as chair of the U.S. Green Building Council Education Subcommittee.

12. Increase coordination between the Solid Waste Division and cities in planning and implementing waste reduction and recycling programs

- Continue to promote broad education campaigns, covering cities and unincorporated areas, while cities continue with the more specific community education.
- Work with cities on integrated resource conservation programs already in place; showcase their successful programs as models for other efforts and work together to design joint, integrated efforts.
- Continue to provide support to cities on the consolidation of the Waste Reduction and Recycling Grant Program and City Optional grant programs into a single Waste Reduction and Recycling grant program. All cities are eligible for grant program funds. The formula for allocating funding includes a base amount plus a percentage based on population and employment. Cities are using the grant funds to implement Plan recommendations based on each community's prioritized needs.
- Provide County assistance to cities in obtaining grants from other sources, as discussed in Chapter 10.

- Facilitate the adaptation of successful programs implemented by larger cities to smaller cities with fewer resources. Provide County funding for the necessary elements, such as computer technology or educational components, to make the transfer from city to city possible.
- Coordinate among the County, cities, and the private solid waste management companies to improve the available data on recycling and waste reduction in the commercial sector.
- Coordinate among the County and the cities in developing future market assessments.
- Coordinate Division Waste Reduction and Recycling Section work plans with city work plans.
- Coordinate between the County and cities to develop consistent evaluation procedures for programs.
- Coordinate between the County and cities on developing consistent program evaluation procedures.

City and County Roles and Responsibilities

In the 1992 Plan, numerous programs for waste reduction and recycling were recommended for implementation by the cities and the County. Since then, most of these programs have been implemented and even expanded to meet our regional goals for reducing waste. A summary of the status of 1992 programs is provided in Appendix B-2.

As in 1992, the cities and King County share responsibility for some programs, while each is solely responsible for implementing others. With more coordinated development of city and County work plans, as recommended above, greater program efficiency and sharing of innovative ideas is expected.

A complete list of ongoing programs and activities and who is responsible for implementation of each is provided in Table 4-3.

References

Cascadia. 2000. *Waste Monitoring Program: 1999/2000 Comprehensive Waste Stream Characterization and Transfer Station Customer Surveys.* Final Report. Prepared by Cascadia Consulting Group, Inc., for King County Department of Natural Resources, Solid Waste Division, Seattle, WA.

Table 4-3. Waste Reduction and Recycling Recommendations

Program or Activity	Strategy	Responsibility for Implementation
Required Collection		
Household collection of primary recyclables	Provide household collection of primary recyclables to all urban single and multi-family residences, and to unincorporated areas as specified in KCC 10.18.020 (B).	Cities, County
Rural drop box collection of primary recyclables	Provide drop box collection sites for primary recyclables to serve areas where household collection is not provided.	County
Special collection events	Provide scheduled events to collect secondary recyclables at sites that serve unincorporated areas of King County.	County
Yard waste collection areas	Provide areas for source-separated yard waste collection at existing Cedar Falls, Factoria and Enumclaw facilities, and at all new or upgraded transfer stations, where feasible.	County
Optional Collection		
Rural household collection of primary recyclables	Periodically assess the feasibility of expanding curbside collection of recyclables in rural areas not currently receiving this service (Vashon, Skykomish, Snoqualmie Pass).	Cities, County
Household collection of secondary recyclables	Add secondary recyclables to collection programs when feasible and supported by community.	Cities, County
Special collection events	Provide scheduled events to collect secondary recyclables at sites serving primarily cities.	Cities
Non-residential collection of primary recyclables	Evaluate options for providing contract recyclable collection service to businesses in jurisdictions that exercise contracting authority.	Cities, County
Drop box collection of primary recyclables at County disposal facilities	Continue to provide collection of primary recyclables at existing transfer stations where space allows, unless an evaluation shows that space would be better used for collection of secondary recyclables.	County
Expanded secondary recyclable collection at County disposal facilities	Provide areas for expanded collection of secondary recyclable and reusable materials at new and upgraded transfer stations, where feasible.	County

Table 4-3. *continued*

Program or Activity	Strategy	Responsibility for Implementation
Policies		
Collection rate incentives	Consider establishing rate incentives for solid waste collection that encourage participation in recycling programs and reduced generation of garbage, such as mini-can garbage service; recycling-only rates for non-garbage customers; embedded recycling costs in garbage fees; and substantial volume-based cost differentials for garbage service.	Cities
Residential yard waste source separation requirements	Continue to implement requirements that yard waste not be discarded as garbage picked up from households by haulers.	Cities, County
Yard waste disposal ban	Ban disposal of yard waste as garbage at County facilities if there is sufficient processing capacity and there are sufficient drop site collection options for landscapers and self haulers.	County
Procurement policies	Continue the adoption of government procurement policies that favor the use of recycled and environmentally preferable products.	Cities, County
Green building	Help implement and promote the Green Building Initiative in all County-funded capital projects.	County
Designation of recyclables	Update list of designated secondary recyclables yearly in Division's annual report.	County
In-house waste reduction and recycling programs	Manage solid waste generated by city and County agencies in a manner that demonstrates leadership for residents, businesses, and institutions.	Cities, County

Table 4-3. *continued*

Program or Activity	Strategy	Responsibility for Implementation
Waste Reduction and Recycling Programs (King County is responsible for implementing all programs below in coordination with cities. Cities may select program activities that best serve their residents and businesses.)		
Waste prevention	Encourage and educate residents and businesses to reduce waste generation through programs targeting specific activities and/or materials: • Promote grasscycling/mulching mower • Promote backyard composting • Promote junk mail reduction • Promote purchasing habits that reduce waste • Provide technical assistance to reduce wasteful packaging • Provide technical assistance to businesses to reduce waste • Promote waste exchanges • Conduct education programs targeted at schools K–12 • Conduct incentive programs, such as recognition programs • Coordinate the National Waste Prevention Coalition listserve and national waste prevention projects	County, City Voluntary County
Recycling	Encourage and educate residents and businesses to recycle: • Educate unincorporated area residents about how and what to recycle • Provide technical assistance to businesses on how to recycle • Link businesses to service providers • Work with certificated haulers to provide recycling information to residents and businesses • Conduct education programs targeted at schools K–12 • Target the building industry for education about CDL debris recycling	County County, City Voluntary
Green building	Encourage the use of recycled and other environmentally sensitive products and practices in the design and construction of buildings, including new and remodeled homes: • Provide leadership training and assistance on the Leadership in Energy & Environmental Design green building standard • Promote green building in the private sector • Continue leadership role in U.S. Building Council	County, City Voluntary

Table 4-3. *continued*

Program or Activity	Strategy	Responsibility for Implementation
Waste Reduction and Recycling Programs – continued		
Integrated resource conservation programs	Integrate waste reduction and recycling programs with other resource conservation efforts, including air and water quality, salmon restoration, and soils management: • Complement and coordinate programs • Leverage dollars to address regional issues • Present a clear, consistent message to citizens on how resources are linked and how they can be conserved	County, City Voluntary
Organics programs	Implement recommended programs and policies: • Improve soil health and organics management in new development • Improve soil health and organics management in existing development • Improve manure management practices • Consider and promote recovery and beneficial use of food waste • Increase recycling of yard waste • Expand markets for compost • Expand organics processing capacity, as needed	County, City Voluntary
Product stewardship	Promote an environmental management strategy under which those who design, produce, sell, or use a product take responsibility for minimizing the products's environmental impact throughtout all stages of the product's life cycle: • Coordinate with other jurisdictions through the Northwest Product Stewardship Council • Develop partnerships with the private sector to focus on reducing disposal of specific materials, such as electronics and carpet • Support regional efforts to implement product stewardship policies	County, City Voluntary

Table 4-3. *continued*

Program or Activity	Strategy	Responsibility for Implementation
Waste Reduction and Recycling Programs – continued		
Regional market development	Continue to foster the development and expansion of markets for recyclable materials in King County and the region: • Consumer outreach: Increase consumer awareness and use of recycled products • Sustainable landscaping: Encourage the use of recycled products and other environmentally sensitive products and practices in landscaping • Assistance to manufactures (*LinkUp*): Create markets for recyclable materials by providing technical and marketing assistance to manufacturers of recycled products and manufacturers interested in converting from virgin to recycled materials • Market infrastructure: Support market development through strategies applying economic development tools, such as financial incentives and commodity specifications	County
City-County Coordination		
Waste reduction and recycling grant program	Provide annual County grant funding to support education and collection of secondary recyclables. Cities choose how to allocate funding in ways that are most useful in their community.	County, Cities
Annual Waste Reduction and Recycling Program Work Plan	Hold annual meetings with the Division and the cities to coordinate work plans and ensure that grant-funded and County programs are coordinated and complementary.	County, Cities